

**Case Report****Double Approach (Laparoscopy and Hysteroscopy) Repair of Istmochele (Niche)*****Pendekatan Ganda (Laparoskopi dan Histeroskopi) untuk Memperbaiki Istmochele (Niche)*****Herbert Situmorang, Ribkhi A. Putri, Cepi T. Pramayadi, Riyan H. Kurniawan, Muhammad D. Priangga, Eka R. Gunardi**

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**Abstract**

**Objective:** Reported a case demonstrate the double approach repair of niche treatment through the hysteroscopy and laparoscopy technique.

**Methods:** Case report. We reported a case starting from the patient admission until 3 months postoperative condition.

**Case:** A thirty three years old woman came with abnormal uterine bleeding, already got medication and combine oral contraception pill, but the bleeding never stopped. We found a cavity (niche) filled by menstrual blood with thin lower uterine segment (just serous layer) from transvaginal ultrasound. We did hysteroscopy and laparoscopy approach. We illuminated the niche by hysteroscopy, then resected it by laparoscopy. Patient had a day hospital admission and no symptoms anymore after the procedure.

**Conclusions:** Many treatment methods have been described for repair of niche with varies effectivities. Double approach (hysteroscopy and laparoscopy) technique was a minimal access, but optimal approach of niche resection with up to 100% effectivity.

**Keywords:** abnormal uterine bleeding, caesarean scar defect, hysteroscopy, istmochele laparoscopy, niche.

**Abstrak**

**Tujuan:** Melaporkan sebuah kasus yang menggambarkan pendekatan ganda dalam memperbaiki niche dengan histeroskopi dan laparoskopi.

**Metode:** Laporan kasus. Kami melaporkan sebuah kasus dimulai dari pasien masuk sampai dengan 3 bulan pascaoperasi.

**Kasus:** Perempuan 33 tahun datang dengan perdarahan uterus abnormal, telah diberikan terapi obat dan pil kombinasi, namun perdarahan tidak berhenti. Dari ultrasonografi ditemukan rongga berisi darah menstruasi dengan segmen bawah uterus yang tipis (hanya lapisan serosa). Kami melakukan pendekatan histeroskopi dan laparoskopi. Dilakukan iluminasi dengan histeroskopi, kemudian reseksi dengan laparoskopi. Perawatan pasien di rumah sakit selama satu hari, dan tidak terdapat keluhan pada pasien setelah tindakan.

**Kesimpulan:** Terdapat banyak metode dalam tata laksana niche dengan efektivitas yang beragam. Pendekatan ganda dengan histeroskopi dan laparoskopi merupakan tehnik dengan akses minimal namun hasil optimal, dengan efektivitas hingga 100%.

**Kata kunci:** perdarahan uterus abnormal, defek skar sesar, histeroskopi, istmochele, laparoskopi, niche.

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**INTRODUCTION**

The uterine scar defect is a breakdown of myometrium along the caesarean scar. It is also called as uterine scar insufficiency, niche, isthmocele, or scar dehiscence. Such defect is a long period complication occurring in 1.9% of caesarean section cases.<sup>1,2</sup>

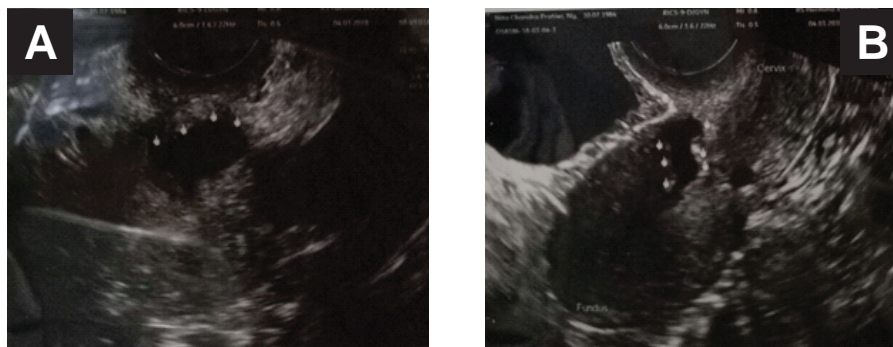
Multiple treatments have been described to repair the niche such as oral contraceptives (OCs), laparoscopic repair, hysteroscopy niche resection, vaginal repair, laparoscopic assisted vaginal repair and robotic-assisted laparoscopic repair.<sup>3</sup> Hysteroscopy gives more cost effective than medical therapy.<sup>4</sup> The success rate of laparoscopic and vaginal repair was 100%.<sup>5</sup>

We report a case demonstrate the double approach repair of niche treatment through the hysteroscopy and laparoscopy technique.

**CASE**

A 33-year-old female presented with abnormal uterine bleeding. She complained of intermenstrual spotting bleeding. There was no history of dyspareunia, dysuria, pelvic pain, and dysmenorrhea. She had history of previous caesarean section once and laparotomy appendectomy. She already got medication and combine oral contraception pill from previous hospitals, but the bleeding never stopped.

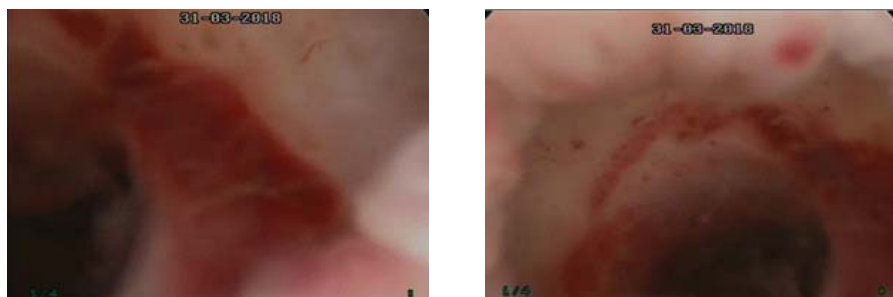
Performed transvaginal ultrasound, found normal ante flexed uterus with homogenous myometrium. We found isthmocele (niche) measuring 20 mm depth, 20 mm width, with residual myometrial tissue of 1mm. We decided to perform double approach surgery to repair the niche.



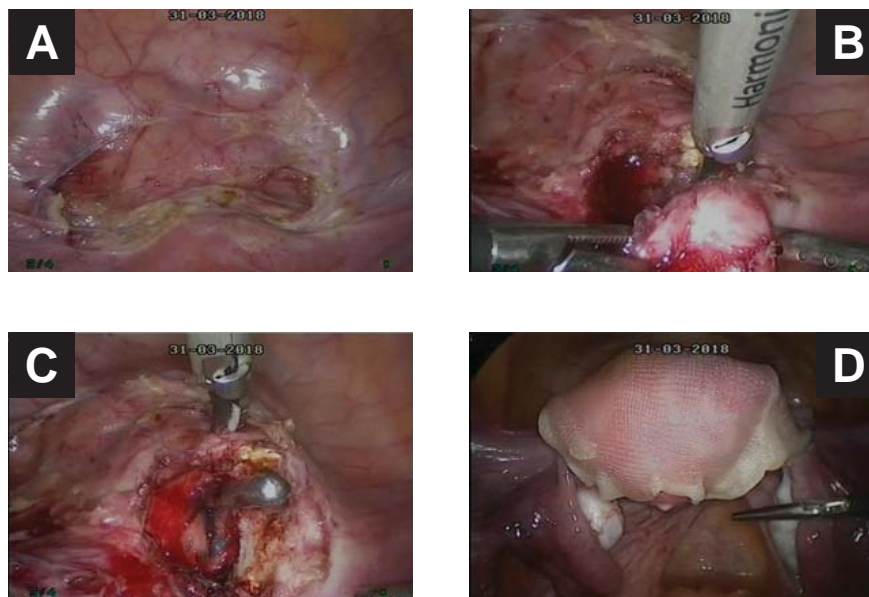
**Figure 1.** Transvaginal Ultrasound of Niche: A Transvaginal Plane, B. Sagittal Plane

First, we did the hysteroscopy to see outpouching of the anterior lower uterine segment. On laparoscopic view, we found the adhesion between the uterus and the anterior and abdominal wall. We removed the adhesions continued with bladder dissection to reach the caesarean scar defect by opening the paravesical space continued with vesicovaginal space. We did the hysteroscopy concomitantly to illuminate the site of the defect through the thin

myometrium. The uterotomy resection of the niche was started from this point of illumination. The resection of fibrotic tissue was performed using ultrasound scalpel. We stitched the defect with barbed suture then applied adhesion barrier after ensuring normal condition of the other genital organ. Post operative was unremarkably well and the patient sent home the day after. After 6 months follow up, she had normal periods without any post menstrual bleeding complaints.



**Figure 2.** Hysteroscopy view of niche note the out pouching into the anterior lower uterine segment



**Figure 3.** A. Illumination of niche, B. Niche resection, C. The hysteroscope protrudes through the defect, D. Placement of barrier adhesion

## DISCUSSION

Niche was defined as 2 mm or more indentation of the myometrium. There were 11-45% of these cases classified as large niche. It is diagnosed when a depth of at least 50 or 80% of the anterior myometrium, or the remaining myometrial thickness  $\geq 2.2$  mm by TVS and  $\geq 2.5$  mm by sono-hystero-graphy.<sup>6</sup>

There are various caesarean related techniques associated with incidence of niche: incision in the low location of uterus (cervical), incomplete suture of uterine incision, and many surgical activities. Cervical incision in caesarean section frequently done in patient with active phase of labor or second stage of labor who have dystocia. The cervix contains mucous glands produce mucous in healing process and make the dilatation of sutured myometrial tissue edge. Single layer closure, locking sutures, and endometrial saving closure may cause the incomplete closure of uterine wall. Many surgical techniques, no peritoneal closure, adhesion barrier, and inadequate hemostasis, induce adhesion formation. Underlying patient's risk factors that affect wound healing process and angiogenesis also associated with niche.<sup>2,5,6</sup>

The symptoms of niche are related to the size of defect. Small niche commonly asymptomatic. Large niche almost symptomatic. Prolonged menstrual bleeding and intermenstrual bleeding are the most common symptoms. Chronic pelvic pain, dysmenorrhea, dyspareunia, and infertility are the others.<sup>1,5,7</sup> Retention of menstrual blood

in the niche, which is intermittently expelled after menstruation, is causing abnormal uterine bleeding. Impaired contractility of muscle fibers surrounding the niche is probably causing spotting bleeding. Newly formed fragile vessels in the niche may also contribute to the accumulation of blood produced in situ.<sup>5,8</sup>

Niche can be diagnosed by transvaginal ultrasound confirmed with hysteroscopy. The defect is seen as anechoic triangular space or niche or even hyperechoic endometrium in ultrasound and as "cleft" in anterior uterine wall (just above the cervical canal) in hysteroscopy.<sup>8</sup> The residual myometrium, level of niche relation to the vaginal fold, and position of uterine artery should be identified and measured from transvaginal ultrasound.<sup>9,10</sup> In this case, transvaginal ultrasound from transversal and sagittal plane showed niche as anechoic space at anterior wall uterus, closed to the cervix, with residual myometrial tissue of only 1 mm. This is the main reason to choose double approach laparoscopy-hysteroscopy for this patient compare to hysteroscopy alone.

Niche can be managed by medication and surgery. Oral contraception (0.5 mg Norgestrel and 0.05 mg Ethinylestradiol) for 3 months can reduced the size of niche and decreased vascularization of scar region in color Doppler scanning.<sup>8</sup> But niche-related menstrual bleeding disorders do not always respond to hormonal therapies. Therefore, a hysterectomy is often performed to treat niche-related gynecological symptoms.<sup>5</sup>

Nowadays, less invasive and more conservative

treatments have been developed.<sup>5</sup> The main aim of therapy are to drainage of menstrual blood, reduce the in-situ production of blood, and reconstruct the uterine defect. Coagulating niche vessels by hysteroscopy resection can reduce the in-situ blood production, with the success rate 92-100%. Reconstruction of the uterine defect by laparoscopic and vaginal repair have success rate 100%.<sup>5,6</sup> Symptomatic small niche can be threatened by hysteroscopy niche resection, but laparoscopic resection and reconstruction for large niche.<sup>1, 10-13</sup> Hysteroscopy was reported more cost effectivity than medical therapy.<sup>4</sup> At that case, laparoscopic resection was the best choice due to the large nice with no residual myometrium. The niche closed by uterine serous layer.

The outcome of niche treatment was reported in a systematic review. Abnormal uterine bleeding was reported to be improved in 87% (hysteroscopy resection), 100% (laparoscopic repair), 93% (vaginal repair), and 91% OCs. In laparoscopic complete resection, the duration of period after repair was  $7.75 \pm 2.7.3$  Residual myometrium (Odds ratio 2.959, 95% CI 1.0238.563) and suturing material (Odds ratio 6.204, 95% CI 1.576-24.422) were independent risk factors for successful healing. The effective repair rate was significantly higher, when sutured with delayed absorbable material.<sup>3, 5</sup> We used Barbed (knotless, delayed absorbable) suture to improve the effectivity.

### CONCLUSION

The uterine scar defect is diagnosed about 1.9% after a caesarean section. Many treatment methods have been described for repair of niche with varies effectivities. Double approach (hysteroscopy and laparoscopy) technique was a minimal access, but optimal approach of niche resection with up to 100% effectivity.

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